

AMATEUR SATELLITE REPORT

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Moscow Space Forum **Highlights Future Space Activities**

More than 850 scientists, half from the Soviet Union and half from 30 other nations, gathered in Moscow recently to exchange views on the future of space. The conference called the "Space Future Forum" was convened by the Soviet Academy of Science's Space Research Institute on the occasion of the 30th Anniversary of the launch of Sputnik October 4. The conference ran for 3 days from October 2 through 4.

About 180 scientists from the U.S. attended. NASA sent a small official delegation and the White House's Office of Science and Technology Policy sent Thomas P. Rona, its Deputy Director. AMSAT President Vern Riportella, WA2LQQ, traveled to Moscow as a guest of the Space Research Institute. Other Amateurs in the U.S. contingent included Dr. Owen Garriott, W5LFL, Dr. Ken Kellerman, K2AOE, of the National Radio Astronomy Observatory, and Dr. Richard K. Moore, WØGYS, of the Center for Research, Lawrence, Kansas.

The conference was held in the modern SOVIN Center in central Moscow. It began on October 2 with opening ceremonies and the Plenary Session. Academician Roald Sagdeev called the conference to order and after some introductory remarks presented various speakers who addressed the Plenary session. Dr. Carl Sagan of Cornell was among the initial speakers. He outlined the options for peaceful uses of space and, in apparent response to the express wishes of the hosts, made no mention of SDI or other overtly controversial subjects.

Sagan was followed by Nobel Laureate Dr. Bernard Lown of Harvard. Dr. Lown's paper, "Medical Visions For the Uses of Space" described current world military expenditures and asked rhetorically what good might derive from diverting even a minute fraction to the health needs of society. Dr. Lown then turned to an example of using space for improving the health status of peoples. He cited his SatelLife Project as an example. Using low cost packet satellites as have been developed by AMSAT and the University of Surrey, he told the world's leading space scientists, together with comparably low-cost earth terminals, an effective electronic mail system could improve health communications to remote areas in meaningful ways. Dr. Lown then show-



The concluding Plenary Session of the Space Future Forum included a live, 2-way TV hookup with the Mir Space Station and its current occupants, Cosmonauts Yuri Romanenko (left) and Alexander Alexandrov seen here on a monitor. Romanenko, who had broken the previous in-orbit record of 240 days only a few days before, said he was feeling fine.

ed conceptual slides depicting a PACSAT and an interfacing terrestrial network. Dr. Lown's paper was co-authored by AMSAT's Vern Riportella and Dr. Malcolm MacLure of Harvard and Drs. David M. French and Anthony W. Robbins of Boston University.

The conference attendees then divided into working groups. Work sessions were scheduled in the areas of solar system exploration, space plasma, high-energy astrophysics, radio astronomy from space, space and the economy and others. Dr. Lown's working group focused on means of achieving a minimum electronic mail system at the earliest time. Participants included senior representatives of Glavcosmos, the COSPAS/SARSAT Search and Rescue Satellite Project and the USSR Red Cross and Red Crescent Societies. The level of staffing seemed to support Dr. Lown's assertion that earlier Soviet assurances of strong support for SatelLife were in fact being borne out. (It had been stated that support for SatelLife was evident at the very highest levels in the USSR and that strong commitments of support including launches and space hardware would be forthcoming.)

Joining the meeting on the second day was Leonid Labutin, UA3CR, the foremost Amateur Radio figure in the



Dr. Bernard Lown, co-winner of the 1985 Nobel Peace Prize, presented a paper in Moscow which described how AMSAT-developed small satellites could address some of the health needs of remote populations.

Soviet Union. Leo helped explain some of the implications of packet radio in an Amateur Radio context. Soon the discussion turned technical. The Soviet scientists and engineers seemed quite familiar with the state of the art in digital communications but nevertheless were intrigued by the obvious simplicity of the TAPR-developed packet radio idea. Discussions then turned to concepts for employing packet radio on an experimental basis on Mir, the Soviet Space station.

Then it was pointed out that the COSPAS/SARSAT system, currently credited with having saved over 1,000 lives, provided an ideal model of international cooperation in space. Further, it was agreed that inclusion of a packet transponder aboard a future COSPAS/SARSAT bus would be relatively simple. (It now seems apparent that COSMOS 1861 which carries RS-10/11 and a Cicada navigation system transponder may also carry the latest COSPAS/SARSAT transponder).

By the end of the third day's working session it was clear the foundation for a broad range of cooperative efforts had been laid. These cooperative efforts represent a close synthesis of AMSAT and SatelLife objectives with the likely outcome that each can strongly benefit the other. AMSAT will lend its technical expertise to SatelLife for the advancement of health communications and SatelLife will use its good offices and access to launch resources for the benefit of both. (A similar appeal is expected to be made at NASA soon; SatelLife has been invited by NASA Administrator Dr. James Fletcher to discuss plans at an upcoming meeting with NASA communications specialists).

In separate meetings between UA3CR and WA2LQQ, plans were discussed for a broad range of cooperative efforts. In brief, these included:

a) Formation of AMSAT-UA, a new organization to be headed by UA3CR.

b) Support of the upcoming Soviet-Canadian Polar Exploration mission by AMSAT-NA and the University of Surrey through its UO-11 satellite.

c) Placement of a digipeater and perhaps a BBS/mailbox on Mir soon.

d) Joint satellite construction projects involving AMSAT-UA, AMSAT-NA and interested European AMSAT affiliates.

e) Development of an Amateur Radio packet radio network in the USSR.

f) Reduction of impediments to commercial launches by the Soviet Union while preserving the security of technical materials provided by the West for launch. (A solution to this problem has been proposed to the Soviet launch authorities and their U.S. representatives by Riportella; U.S. lawyers are preparing to brief the approach to the State Department).

g) Assistance in interfacing FO-12

h) Provision of "The New World of Amateur Radio" video to Soviet Amateurs.

Finally, WA2LQQ invited UA3CR to attend the 1988 AMSAT Space Symposium and to tell of his polar expedition experiences.

In summarizing the Moscow trip WA2LQQ said: "This clearly was a very important meeting in terms of relations with the Soviet Union across a broad range of subjects. Many in the group traveling from the U.S. to Moscow were gratified to observe what seemed more than a superficial facade in "Glasnost". To the contrary, the Soviet scientists we worked with were openly cordial, warm and genuinely helpful; more so than any of us had reason to believe was possible ahead of time. The long term results of this meeting in joint space science, uses of space for peaceful purposes and for Amateur Radio will unfold in due course. But this was a most auspicious start in a new era of cooperation."

The White House has announced a follow up meeting will be held in the United States next year. This was announced during the Moscow meeting by Dr. Rona.



Dr. Thomas Paine, formerly NASA Administrator during the Apollo missions and recently chairman of a U.S. space plans study committee, listens to a speaker at the opening Plenary Session of the Space Future Forum in Moscow.



At home with son Evgeny (right), Leonid Labutin, UA3CR, has been asked to form AMSAT's newest affiliate, AMSAT-UA.



The largest congregation of Astronauts and Cosmonauts ever assembled (42) shared a stage in the auditorium of the Cosmonaut Training Facility at Star City 30 miles north of Moscow. Seen here are several retired U.S. Astronauts including (left to right), Jim "Ox" Van Hoften (shuttle); Dick Gordon (Apollo 12); Stuart Roosa (Apollo); Rudolphi Neri-Vela (Mexico; shuttle) and Owen Garriott (W5LFL; Skylab and shuttle).

IARU Handles Mexican Proposal On 430-440 MHz Band

by David Sumner, K1ZZ IARU Secretary

[Following, although a bit out of date, provides a helpful understanding as to the workings of the IARU when an action by the Mexican government at the Mobile WARC in Geneva appeared to adversely affect Amateur interests in the 70 cm band. This note is a follow-up to our FLASH in ASR #160 — Ed]

We received some further news from Geneva this morning with regard to the Mobile WARC 430-440 MHz proposal by Mexico.

Since a lot of inaccurate rumors have been flying around on this subject, let's begin with a restatement of exactly what was originally proposed. On September 25, Mexico proposed a new footnote, 664A, to the international Table of Frequency Allocations that would have read as follows: "Additional Allocation: In Mexico, the band 430-440 MHz is also allocated to the mobile (except aeronautical mobile) service on a primary basis." The proposal made no mention of any other country.

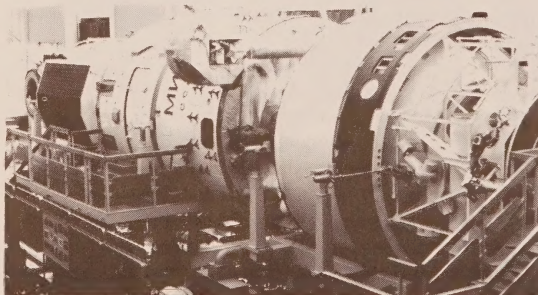
The first question was, did the Mobile WARC even have authority to address such an allocations issue, inasmuch as it affected services other than the mobile services? Under the terms of reference of a conference that is limited to a single service, no action can be taken that would significantly affect another service — and in this case, the amateur, amateur-satellite, and radiolocation services would stand

to be affected — unless such action is included in the agenda.

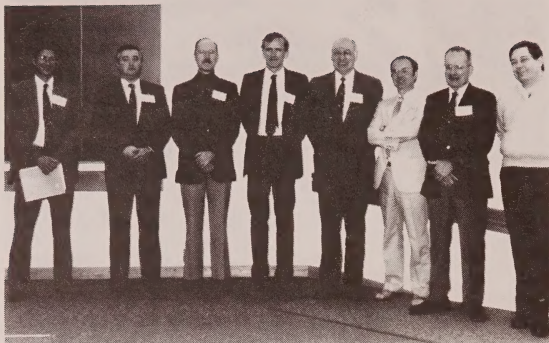
On the other hand, there is no principle that is more important to ITU member-countries than that of national sovereignty. Paragraph 342 of the Radio Regulations permits administrations to make frequency assignments to stations without regard to the international Table, provided that harmful interference is not caused to stations operating in accordance with the Table. In other words, Mexico is already free to make whatever arrangements it wants within 430-440 MHz as long as harmful interference does not result outside its borders.

As far as amateurs are concerned, the most serious threat of international interference that might arise from mobile operation in this band is to the amateur-satellite service at 435-438 MHz. This problem had also surfaced at WARC-79, at which 39 countries had requested to be included in a similar footnote. Following an IARU intervention — I believe this matter was the subject of the only formal document submitted for WARC-79 consideration by IARU — the administrations agreed to exempt 435-438 MHz from mobile operation. The footnote that resulted is number 658. (Incidentally, chapter 2 of the ARRL Operating Manual is a good reference for this and other international allocations discussions.)

In this case, discussions between IARU President Richard



A tour of the Star City Cosmonaut training facility included access to a full-size training mockup of the Mir Space Station.



Some AMSAT members at the Utah Small Satellite Conference included (left to right): Dr. Pierre Kaufmann, radio astronomer of Brazil; Vern Riportella, WA2LQQ; Dick Daniels, W4PUJ; Gordon Hardman, KE3D; John Browning, W6SP; Dr. Martin Sweeting, G3YJO; Dick Jansson, WD4FAB and Gerry Creager, N5JXS. Others at the meeting included Junior DeCastro, PY2BJO, Gary Garriott, WA9FMQ and Rick Fleeter, WA8VKG.

Baldwin, W1RU, and the representative of Mexico accomplished the same objective: Mexico agreed to eliminate 435-438 MHz from its proposed footnote. (Dick is in Geneva for the entire duration of the Mobile WARC, heading up the IARU observer team.)

The modified proposal by Mexico referring only to 430-435 and 438-440 MHz came up for discussion in Committee 4A on September 27. Following its introduction, the U.S. spokesman objected to the proposal, pointing out that it would be difficult to coordinate the proposed mobile service with the existing radiolocation service. The chairman of the committee asked that Mexico and the U.S. get together and work out language that was acceptable to both.

At last night's (October 5) meeting of Committee 4A, Mexico once again announced a modification of its proposal, this time to add a provision requiring "Article 14" procedures. Article 14 is a three-page section of the Radio Regulations entitled, "Supplementary Procedure to Be Applied in Cases Where a Footnote in the Table of Frequency Allocations Requires An Agreement with an Administration." What it boils down to is that, before an assignment can be made to a station in a service listed in such a footnote, agreement must be obtained from any administration that believes its services that are operating in accordance with the Table might be affected. This eliminated any basis for U.S. objection, since U.S. agreement would have to be obtained prior to the introduction by Mexico of a mobile service into this band.

One concern we felt upon originally hearing of the proposal from Mexico was that other countries might wish to join Mexico in such a footnote. In Committee 4A, no other country made such a request. The proposal now goes to Committee 4 and then to the Plenary, and at either point further modifications might be made — or it might be dropped altogether. The IARU observer team present in Geneva will continue to follow the matter. As it stands, the number of countries authorized to make land mobile assignments in the 430-435 and 438-440 MHz bands will simply go from 39 to 40 (plus seven others that may do so at 430-432 and/or 438-440 MHz).

I should mention that Dick is being assisted by Wojciech Nietyksza, SP5FM, who is Vice Chairman of IARU Region 1 and is a veteran of many ITU conferences. They both emphasize that there has not at any time been any cause for panic on this issue. In their view it was a straightforward problem, resolved in a logical fashion.

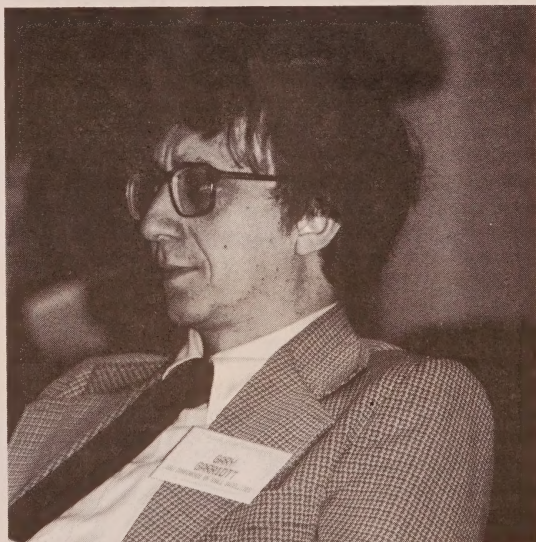
One may well ask what Mexico has gained as a result of its proposal. The answer is, not much — as long as the U.S. adequately protects the interests of its radiolocation and amateur services during the "Article 14" procedure. If, in the course of that procedure, the U.S. were to agree to Mexican mobile operation in the vicinity of the U.S. border, we might have a problem — but we won't be crossing that bridge in Geneva, and probably not for months or years afterwards.

There may not be any further news for another week to ten days. The Mobile WARC is scheduled for completion on October 16, and there can be no "final" report until after the second reading of conference actions in the Plenary — one of the last steps before adjournment.

NASA Announces Next Shuttle Flight Payload

NASA has announced what will be aboard the next Space Shuttle mission, currently scheduled for June of next year. The primary cargo is said to be a Tracking and Data Relay Satellite (TDRS) to be placed in geostationary orbit. It is to replace the unit destroyed in the Challenger disaster. The TDRS system serves as broadband relays providing the Shuttle (and other satellites as well) with continuous high speed communications paths to ground based stations. NASA indicates that the TDRS almost fills the entire Shuttle cargo bay.

The planned launch of Discovery, the 26th of the STS program, will also carry commercial and student designed ex-



Dr. Gary Garriott, WA9FMQ, of VITA, listens to a paper at the Utah "Small Satellite Conference". VITA recently announced it has received grant money for a PACSAT satellite (See story in this issue).

periments. Experiments to be conducted include those on microgravity, magnetic materials, materials that detect infrared radiation and on materials that do not mix.

One experiment will be testing the use of infrared light to carry Shuttle crew communications. An experiment provided by the 3M Company will be centered around crystal growth. Other studies include those on blood and on lightning and severe weather.



Dr. Rick Fleeter, WA8VGK, presented a paper in Utah on behalf of his employer, DSI, of Virginia.

Utah Satellite Conference Hears Five AMSAT Papers

Some of AMSAT's best engineering talents were on display October 7-9 when the Utah Section of the American Institute Aeronautics and Astronautics (AIAA) and Utah State University jointly hosted the First Annual Small Satellite Conference in Logan, Utah. The conference is the second in recent months to address this "hot" topic. In early August more than 800 gathered in Monterey to hear papers on "Lightsats"

Papers presented in Utah by AMSAT members included "Spacecraft Technology Trends in the Amateur Satellite Service" by Dick Jansson, WD4FAB. Dick's paper traced the growth and maturation of OSCAR technology with emphasis on OSCAR 5 and newer satellites.

Dick Daniels, W4PUJ, presented his paper entitled, "'Bare Bones' Propulsion for Small, Low Cost Satellites". He explained the evolution of AMSAT's kick motor system beginning with Phase 3A, through AMSAT OSCAR 10 and to Phase 3C.

Dr. Martin Sweeting, G3YJO, of the University of Surrey, presented on the "UoSAT Spacecraft Engineering Research Unit" in which he described the functioning of the Surrey organization and how spacecraft are developed there. He also touched on the design philosophy of UoSATs.

Gordon Hardman, KE3D, gave his paper, "The Integrated Housekeeping Unit: A Method of Telemetry, Command and Control for Small Spacecraft." He described the background of the IHU going back to its 1975 conception along with some of its features and capabilities. Gordon recently applied the finishing touches to the IHU which will fly on Phase 3C early in 1988.

Gary Garriott, WA9FMQ, of VITA, announced the grant awards for PACSAT. (See story elsewhere in this issue.)

Dick Daniels also filled in for Vern Riportella, WA2LQQ, at the Opening Plenary Session. Rip was late arriving from his Moscow trip but later read a paper on the evolving private sector applications of small satellites. He concluded his remarks with some fresh observations of the Soviet Space program garnered during his Moscow trip.

At the concluding Plenary Session, Dr. Frank Redd, conference general chairman, summarized the conference and the various workshops. He remarked that AMSAT had an impressive base of experience in the field of small satellites. Based on the excellent papers presented, that was apparent to many of the approximately 100 attendees.

Other AMSAT members at the conference included Chairman John Browning, W6SP; BRAMSAT President Junior DeCastro, PY2BJO; Rick Fleeter, WA8VGK; and Gerry Creager, N5JXS.

AMSAT UK To Launch Balloon To Prepare For Spacecraft Project

AMSAT-UK announces Project HART, a High Altitude Radio Transponder experiment designed by "ordinary" people with the aim of developing expertise in fields leading to putting technically simple projects into orbit.

HART is designed to be flown on balloons, initially of the manned hot-air variety, but future flights on meteorological missions are not excluded. The currently planned mission should take the experiment to an altitude of over 30,000



Dr. Allen Fuhs, Immediate Past President of the AIAA and retired Distinguished Professor of Aeronautics at the Naval Postgraduate School, Monterey, was the featured banquet speaker in Utah.

feet. It should be audible over a radius of several hundred miles.

Currently the experiment consists of a transponder and beacon. In future, AMSAT UK expects to include telemetry in the beacon transmissions. Frequencies currently selected are: Uplink 435.040 - .050, non-inverting downlink 145.840 - .850, CW beacon 145.852 MHz; frequencies chosen are in the "space" part of the band since this project is related to space research. The transponder has an output power of 300 mW ERP and the beacon, which transmits callsign and an ascending serial number (000-255) at 10 wpm every 80 seconds, runs 60 mW (OSCAR-5 only ran 50 mW). Aerials are linear and more or less vertically polarized since they will dangle beneath the balloon. Battery life is expected to exceed 10 hours.

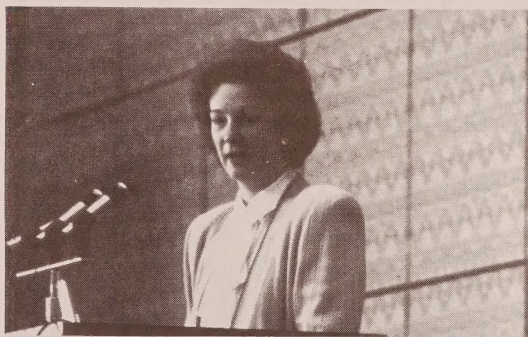
Launch is expected within the next few weeks.

Organize Moonbounce Activity From 140' NRAO Facility

by Dr. Thomas A. Clark, W3IWI

[Regretably, this article was not available in time for ASR #160. However, due the interest this activity has generated, it is printed after the fact for general interest and historical purposes. — Ed]

Interested parties should be aware of plans for an extensive moonbounce (EME) expedition which has been scheduled to coincide with the 17/18 October ARRL international moonbounce contest. This activity will include



Dr. Susan Eisenhower, grand-daughter of the U.S. President, addresses the Closing Plenary Session of the Space Future Forum in Moscow.

using the 140' diameter radio telescope at the National Radio Astronomy Observatory (NRAO) in Greenbank, West Virginia. Plans call for activity on 3 bands — 432, 1296 and 2304 MHz. The 140' radio telescope is located at 79.83 deg. longitude and 38.44 deg. latitude, corresponding to grid designator FM08ck.

The operating schedule calls for being QRV during the entire time the moon is above the horizon — about 13 hours per day. Available moon windows from Greenbank are 06:40-20:00 UTC on the 17th and 07:40-20:30 UTC on the 18th (plus an optional window from 08:40-12:00 UTC on the 19th given extraordinary team stamina and if there is anyone left to work).

Nominal operating frequencies will be 432.025, 1296.025 and 2304.010 MHz. Operation on the 432 and 1296 MHz frequencies can be concurrent since the dish antenna feeds are concentric (except that transmitting on one band will overload the other receiver). The 2304 MHz feed is off-axis, so the antenna must be re-pointed to QSY to that band. Plans aim to concentrate on 432/1296 the first day (Oct. 17) and schedule 2304 MHz during the second day.

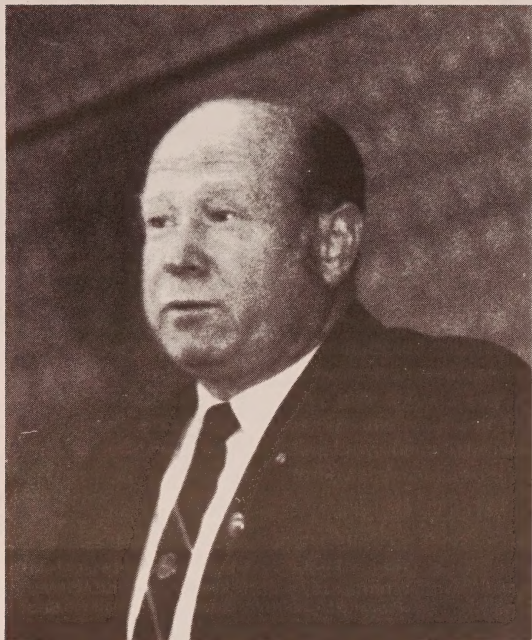
Due to telescope constraints, the team has decided to use all solid-state transmitters. The power amplifier for 432 MHz will run about 140 watts output, while the 1296 and 2304 amplifiers will run about 100 watts output. These will be housed along with the GaAsFET receiver preamps in a large (.7m x line loss problems. The feeds for all three frequencies support circular polarization and the polarization sense will be remotely selected from the control room. On 432 MHz they will use a Kenwood TS-811 as the exciter, while 1296 and 2304 will share a TS-711 exciter to drive the respective transmitting converters. On the receive side, the 711/811 all-mode radios will be augmented by a TS-940.

The team expects to be able to QSO stations that have EME capability without the need for schedules on 432 and 1296. They request that stations working them "random" not transmit on their frequency — THEY PREFER TO TUNE FOR YOU!

Given the gain of the 140' dish, it should be possible for Greenbank to work a well-equipped non-EME station on 432 and 1296. If you have one or two yagis, can generate 2-3 kW EIRP and have a good GaAsFET preamplifier, there is a chance for a QSO. In order to QSO such stations, the team expects to resort to schedules and will use the "432 standard" EME format. To make a sked, contact Jay, K5JL on the weekend EME net (Saturdays and Sundays at 16:00 UTC on 14.345) or by phone (405-373-3758). When keeping skeds or calling CQ, they will follow the standard 5 minute EME sequence and will transmit during the first 2.5 minute window. During the weekend you can also request



Dr. Frank Redd, of Utah State University and Small Satellite Conference chairman cited AMSAT's achievements in his conference closing remarks.



Cosmonaut Alexei Leonov, veteran of the Apollo-Soyuz mission and the first "space walker", was a spokesman for the Cosmonauts at the Space Future Forum in Moscow.

It now appears that it may be possible for them to also operate on 10.368 GHz. Anyone who has similar capability should contact them ASAP for schedule planning. Their TWT (traveling-wave-tube) transmitter will run about 25 watts. The antenna beamwidth will be 3 minutes of arc which is about 1% of the lunar disk!

[Hopefully ASR will have a follow-up story and some photos of the EME activity in its next edition.]

Short Bursts

- Radio amateurs in Southern Africa have joined forces to provide communications for the Roof of Africa rally, one of the world's most grueling races. SA AMSAT built a mobile 2 meter repeater which was temporarily installed on a mountain near Maseru (capital of Lesotho). For the first time Lesotho Amateurs will be using packet radio to feed information from the finishing line to the control point in a central Maseru Hotel. George Hunt, 7P8DL, spent last weekend with SA AMSAT members in Johannesburg to get the equipment lined up.
- Doug Loughmiller, Acting VP of Field Operations, has appointed a new Area Coordinator based upon a nomination from Byron, W4BIW. James Penland, N4RAR, of the Atlanta area comes on line in Byron's region. Mr. Penland is an attorney in Atlanta and Byron indicates that he is very much involved with AMSAT activities in that area.

a sked by telephoning them at the 140' telescope (304-456-2347). They anticipate that all 2304 MHz activity will be done with skeds.

After the moon sets each night, the team at Greenbank will be available to try long-haul tropo skeds on any of the three bands. Due to telescope limitations, they can only point to the horizon at southerly azimuths in the range 80 to 280 degrees. Again contact K5JL or telephone for skeds. Because the beam of the 140' telescope ranges from 1.1 degrees (at 432 MHz) to 0.24 degrees (at 2304), they will need to know your latitude and longitude quite accurately to know where to point the antenna.

During the weekend the team anticipates that there will be many hours during which there is nobody new to work. During these times they will be trying some "exotic" tests. They expect to be QRV for packet tests with several modems (300 baud with 200 & 600 Hz FSK, 1200 baud with 1000 Hz FSK, 1200 baud PSK). They also anticipate trying some DSP (digital signal processing) tests using techniques being developed by W3IWI and N4HY.

This extravaganza is a joint effort of a number of people from all over North America (NJ, MD, VA, WV, OK, KS and Manitoba): The feeds for all 3 bands and the 2304 MHz hardware are being provided by VE4MA. WBØDRL is providing the 1296 RF hardware and W3IWI the 432 hardware. The 1296 and 2304 100 watt power amplifiers are coming from WA2FGK with help from K2TKN. K5JL is coordinating on-the-air schedules. Telescope activities are being handled by engineers and radio astronomers from NRAO (AA4TJ, K2AOE, N4FWA, WB3DZC, WA4ZJO and others) and from NASA/Goddard (W3IWI and W8MIF).



Academician Roald Sagdeev, Director of the Space Research Institute of the Soviet Academy of Sciences, addresses his introductory remarks to the Plenary Session.



Moscow conferees included Dr. Thomas Paine (back to camera), Dr. Carl Sagan and Don Fink. Paine is the former NASA Administrator. Sagan is the well-known planetary scientist, author and TV personality from Cornell. Fink is the Editor-In-Chief of *Aviation Week and Space Technology* magazine. Seen in the background is Jeff Lenorovitz, *Av Week's* Paris Bureau Chief.

VITA Announces PACSAT Grants

VITA, the Volunteers In Technical Assistance has received grants totaling as much as \$475,000 to design, build and operate a low earth orbiting PACSAT packet radio satellite. VITA made the announcement October 1. The satellite will not be in the Amateur Radio service but will instead use

frequencies especially earmarked for it probably under a United Nations banner.

The grants come from the U.S. Department of Energy (\$350,000) and the Hoover Foundation (\$175,000).

When launched and placed in operation, the VITA-PACSAT will provide low cost electronic mail communications to remote areas where communications are sparse or non-existent. The concept was probably first proposed by Dr. Yosh Pal of India, advanced by AMSAT's Dr. Tom Clark, W3IWI and further developed and advocated by VITA. Early studies by VITA and AMSAT's Harold Price, NK6K, together with current demonstrations by the University of Surrey's UoSAT OSCAR 11 Digital Communications Experiment (DCE) have led to the present grants to VITA. There are now DCE stations in UK, Australia, US, Pakistan and Antarctic. A new DCE station is about to be established by Southern Africa AMSAT (SA AMSAT).

Although the VITA-PACSAT will not be an Amateur Radio bird, the construction of it may well pave the way for an AMSAT-PACSAT too. If an AMSAT-PACSAT can use many of the same systems and sub-systems as the VITA-PACSAT, then the cost of the AMSAT-PACSAT can be reduced substantially. A 1988 launch is being discussed for the VITA-PACSAT. AMSAT President Vern Riportella, WA2LQQ, says a 1989 launch for an AMSAT-PACSAT project is a very real possibility.

The VITA-PACSAT will likely be built under the leadership of the University of Surrey acting as prime contractor. AMSAT and TAPR may provide sub-contractor services and hardware to Surrey.

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Leonid Labutin, UA3CR (left) and Vern Riportella, WA2LQQ, had several important meetings during the latter's visit to Moscow. This dinner meeting continued discussions on a broad range of topics of mutual interest.

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